REMARKS

Claims 21, 29-31, 33, 34, 36 & 39 have been amended. Claims 21-40 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

AMENDED CLAIMS

Claims 21, 29-31, 33, 34, 36 & 39 have been amended to address informalities in the claims and to clarify aspects of the invention in a more particular and distinct manner. Support for the amendment to the claims can be found on pages 8-16 of the specification. No new matter has been added.

DOUBLE PATENTING

Paragraph 2 on page 2 of the Action states, "Applicant is advised that should claim 39 be found allowable, claim 40 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof." Furthermore, the Action references MPEP section 706.03(k) and states, "When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim."

Dependent claim 39 recites further details associated with the step of "providing a first set of drive waveform parameters for a first laser," which is initially recited in independent claim 36. Specifically, claim 39 recites, "wherein providing a first set of drive waveform parameters for a first laser includes one of:

digital programming of a bias current parameter;

digital programming of a modulation current parameter;

digital programming of a negative peaking depth parameter during an optical one to optical zero transition; and

digital programming of a negative peaking duration parameter during an optical one to optical zero transition."

Moreover, claim 39 has also been amended to clarify that the digital programming steps are occurring prior to the operation of the first laser.

In contrast, dependent claim 40 is directed at reciting further limitations of a completely different step of independent claim 36. Specifically, claim 40 recites further details associated with the step of "adjusting the drive waveform parameters during the operation of the laser driver based on one of a temperature factor and an aging factor," of independent claim 36.

Furthermore, the claim language of claim 39 is different from the claim language of claim 40. For example, claim 40 recites

"wherein adjusting the drive waveform parameters during the operation of the laser driver based on one of a temperature factor and an aging factor includes one of:

digital programming of an updated bias current parameter;

digital programming of an updated modulation current parameter;

digital programming of an updated negative peaking depth parameter during an optical one to optical zero transition; and

digital programming of an updated negative peaking duration parameter during an optical one to optical zero transition."

As is evident from the claimed limitations, the digital programming of an initial bias current parameter prior to operation of the laser is different from the digital programming of an updated bias current parameter during operation.

In view of the foregoing, it is respectfully submitted that claim 39 and claim 40 are not substantial duplicates of each other. It is respectfully requested that the objection of claims 39 and 40 that are based on double patenting be withdrawn.

REJECTION OF THE CLAIMS UNDER 35 U.S.C. 112

Claims 21-28 and 36-39 are rejected under 35 U.S.C. 112, second paragraph for the reasons set forth on page 3 of the Action. Paragraph 2 on page 3 of the Action states that claim 21 is incomplete for omitting essential elements (citing MPEP section 2172.01). The Action interprets page 10, lines 3-19 of the specification as requiring the claimed invention to have a digital controller.

The rejections under 35 U.S.C. 112 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The portion of the specification supposedly requiring a digital controller, cited by the Action, has been reviewed. However, there does not appear to be any language that requires the laser driver of the invention to include a digital controller. Likewise, the figures do not require the invention to have a digital controller. For example, FIG. 1 illustrates the laser driver 100 according to the invention without a digital controller. FIG. 2 describes a possible embodiment or an example of how the laser driver 100 according to the invention can be implemented. However, FIG. 2 does not require, nor should it be

interpreted as requiring, the laser driver of the invention to have a digital controller. If this rejection is maintained, it is respectfully requested that a specific portion of the specification that requires the laser driver of the invention to include a digital controller be referenced.

Paragraph 3 on page 3 of the Action states that the phrase "can include" implies possibility thereby making the claim ambiguous. In response, claim 36 has been amended to delete the objected to language.

Accordingly, it is submitted that claims 21-28 and 36-39 now fully comply with the requirements of 35 U.S.C. 112, second paragraph. It is respectfully requested that claim rejections under 35 U.S.C. 112, second paragraph, be withdrawn.

REJECTION OF CLAIMS 29-39 UNDER 35 U.S.C. 102(b)

Claims 29-39 are rejected under 35 U.S.C. 102(b) for the reasons set forth on pages 3 & 4 of the Action. Specifically, claims 29-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Shastri et al. (U.S. Pat. No. 5,844,928, hereinafter the Shastri reference).

The rejections under 35 U.S.C. 102 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

Pages 3 & 4 of the Action cites columns 2 & 3 and elements 14, 16, 20, 36, 38 and 43 of FIG. 2 of the Shastri reference for teaching the laser driver and method as claimed.

The Federal Circuit has held, "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

It is respectfully submitted that the Shastri reference, whether alone or in combination, fails to teach or suggest, inter alia, the following claim limitation: "a waveform shaping circuit coupled to the digital controller for receiving the set of drive waveform parameters and responsive thereto for generating a drive waveform that is dependent on the set of drive waveform parameters; wherein the waveform includes a negative peaking portion; and wherein the drive waveform parameters includes at least one parameter for affecting the negative peaking portion of the drive waveform," as claimed. Support for this limitation may be found on page 10 lines 3 to 12.

Affecting (e.g., programming) aspects of the negative peak portion of the drive waveform, which is illustrated in FIG. 7, is described in the specification on page 10:

> "One feature of the laser driver of the present invention is the programmability of the ac characteristics, such as negative peaking depth and duration, of the VCSEL drive waveform. Negative peaking refers to peaking of the VCSEL drive waveform during the logic one to logic zero falling transition. Ipkd is the negative peaking depth. Tpkw is the negative peaking duration.
>
> The laser driver 100 can digitally program a negative peaking depth on the VCSEL drive waveform for use during an optical one to zero transition. The negative peaking is used to decrease the optical fall time during a one to zero transition. Also, the laser driver 100 can digitally program a negative peaking duration on the VCSEL drive waveform for use during an optical one to zero transition."

It is noted that negative peaking can be employed advantageously to decrease the optical fall time during a one to zero transition. See Specification, page 10, lines 9-10.

The section entitled "Response to Arguments" on page 2 of the Action states that the prior art teaches "a logic 1 to logic 0 creates an undershoot known as negative peaking. This characteristic is inherent within the laser devices involved in switching between on and off of the laser." Assuming arguendo that there exists in the prior art a drive waveform that has a negative peak portion, the mere existence of the negative peak portion does not fairly teach or suggest the claim limitation: "wherein the drive waveform parameters includes at least one parameter for affecting the negative peak portion of the drive waveform," as claimed in claim 29.

Furthermore, the Federal Circuit has ruled, "Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. . . . In addition, the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." Akzo N.V. v. United States Int'l Trade Comm'n, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). [emphasis added.]

In this regard, should a prior art reference be found that shows a drive waveform with a negative peak portion, it is respectfully submitted that the mere existence of the negative peak portion does not enable the use of waveform parameters to affect or program aspects (e.g., the depth or duration) of the negative peak portion as claimed.

Moreover, the Federal Circuit has ruled, "For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient

clarity to prove its existence in the prior art. See In re Spada, 911 F.2d 705, 708, 15 USPQ 2d 1655, 1657 (Fed. Cir. 1990) ("[T]he [prior art] reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." (citations omitted)). Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there." Motorola, Inc. v. Interdigital Tech. Corp., 43 USPQ 2d 1481, 1490 (Fed. Cir. 1997)

In this regard, it is respectfully submitted that the claim limitations related to the use of parameters for affecting the negative peak portion of a drive waveform have been improperly read into the Shastri reference. Also, the limited teachings of the prior art, if any, regarding a drive waveform with a negative peak portion are insufficient to have placed a person of ordinary skill in the field of the invention in possession of the claimed invention.

Dependent claims 30-35 incorporate all the limitations of the independent claim 29. In this regard, the dependent claims also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

Method Claims 36-40

Regarding independent claim 36, it is respectfully submitted that Shastri does not fairly teach or suggest a method for providing a drive waveform, as claimed. For example, Shastri does not fairly teach or suggest, inter alia, the following:

wherein the waveform includes a negative peaking portion; and

wherein the drive waveform parameters includes at least one parameter for affecting the negative peaking portion of the drive waveform," as claimed.

Dependent claims 37-40 incorporate all the limitations of independent claim 36. In this regard, the dependent claims 37-40 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

For example, regarding claim 39, it is respectfully submitted that Shastri does not fairly teach or suggest one of:

digital programming of a negative peaking depth parameter during an optical one to optical zero transition; and

digital programming of a negative peaking duration parameter during an optical one to optical zero transition," as claimed.

Similarly, regarding claim 40, it is respectfully submitted that Shastri, whether alone or in combination, does not fairly teach or suggest one of

digital programming of an updated negative peaking depth parameter during an optical one to optical zero transition; and digital programming of an updated negative peaking duration parameter during an optical one to optical zero transition," as claimed.

As advanced previously, the Shastri reference does not even appear to teach or suggest the programming of any aspect of a negative peak portion of a drive waveform. As a matter of fact, neither the Shastri reference nor the Olsen reference appears to teach or suggest a drive waveform that has a negative peak portion.

In view of the foregoing, it is respectfully submitted that the Shastri reference, whether alone or in combination, fails to teach or suggest the driver and method for providing a drive waveform, as claimed. Accordingly, it is respectfully requested that the rejection of the claims under 35 U.S.C. 102 be withdrawn.

REJECTION OF CLAIMS 21-28 UNDER 35 U.S.C. 103(a)

Claims 21-28 are rejected under 35 U.S.C. 103(a) for the reasons on pages 4-6. Specifically, claims 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shastri et al. (U.S. Pat. No. 5,844,928) in view of Heilman et al. (U.S. 2000/0094000, hereinafter the Heilman reference) and Olsen (U.S. Pat. No. 5,844,928 hereinafter the Olsen reference).

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Action cites FIG. 2 (elements 20 and 36), and Columns 2 & 3 for teaching the adjustment of drive current to compensate for aging and temperature fluctuations.

Regarding claims 21, 23, 26 and 27, the Action further notes that Shastri et al. does not teach 1) ac characteristics of a laser system and 2) the use of an array of lasers. Paragraphs 0006 of Heilman are cited for teaching negative peaking. Elements 18 and 54 of FIG. 2, col. 3, lines 33-40 & col. 6, lines 8-18 of Olsen are cited for teaching parallel semiconductor laser arrays.

First, the Heilman patent application does not appear to be a valid prior art reference that can be applied against the current application. The Heilman reference

indicates a filing date of March 12, 2002. The current case has a filing date of December 12, 2000, which is before March 12, 2002. According, it appears on its face that the Heilman reference is not prior art with respect to the current application. It is respectfully requested that the Heilman reference be withdrawn and not used as a basis for rejecting the pending claims.

Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MAIL STOP: NON-FEE AMENDMENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 on the date below.

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August 22, 2003
(Date)